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HELMINTHOLOGICAL ABSTRACTS

VOL. XV

incorporating
BIBLIOGRAPHY OF HELMINTHOLOGY
For the Year 1946



COMMONWEALTH BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)

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IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)

Winches Farm Drive, Hatfield Road,
St. Albans, England.

December, 1946

IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY (HELMINTHOLOGY)

Director - - Professor R. T. Leiper, C.M.G., M.D., D.Sc.,
F.R.C.P., F.R.S.

Technical Assistants Miss A. Walton, Miss B. Birdsey.

HELMINTHOLOGICAL ABSTRACTS
incorporating
BIBLIOGRAPHY OF HELMINTHOLOGY

Abstracts in the present number are by :

J. J. C. Buckley.	J. W. G. Leiper.
Phyllis A. Clapham.	R. T. Leiper.
D. W. Fenwick.	P. L. leRoux.
Mary T. Franklin.	B. G. Peters.
T. Goodey.	Nora G. Sproston.

HELMINTHOLOGICAL ABSTRACTS

INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY
FOR THE YEAR 1946.

Vol. XV, Parts 1 & 2.

1—Amateur Gardening.

- a. WILSON, G. F., 1946.—“The bulb eelworm problem.” No. 3238, p.14.

(1a) Fox Wilson gives a popular and accurate account of the bulb and stem eelworm mentioning important facts about biologic races and, in particular, dealing with its attacks on narcissus bulbs. He gives the chief symptoms of attack on foliage and within the bulb, points out the importance of burning all badly affected bulbs, and explains how it can be controlled by soaking bulbs during their resting stage in water at 110°F. for three hours. T.G.

2—American Journal of Hygiene.

- a. AUGUSTINE, D. L. & LHERISSON, C., 1946.—“Studies on the specificity of intradermal tests in the diagnosis of filariasis.” 43 (1), 38–40.
b. CULBERTSON, J. T., ROSE, H. M. & OLIVER-GONZALEZ, J., 1946.—“Chemotherapy of filariasis due to *Wuchereria bancrofti* with neostibosan.” 43 (2), 145–151.
c. MAGATH, T. B. & MATHIESON, D. R., 1946.—“Important factors in the epidemiology of schistosomiasis in Leyte.” 43 (2), 152–163.
d. WARREN, V. G., WARREN, J. & HUNTER, III, G. W., 1946.—“Studies on filariasis. I. Serological relationships between antigenic extracts of *Wuchereria bancrofti* and *Dirofilaria immitis*.” 43 (2), 164–170.

(2a) Augustine & Lherisson have investigated the specificity for filariasis of skin tests with antigens made from *Dirofilaria immitis*, *Setaria equina*, *Litomosoides carinii* and *Vagrililaria columbigallinae*. A series of subcutaneous injections of a given antigen were given to rabbits and 10 days later intradermal tests with specific and non-specific antigens were made. The largest wheal was obtained in rabbits immunized with *V. columbigallinae* with *D. immitis* antigen. They assume that non-human filarial worms can influence the serological reactions of man and suggest that some of the false positives obtained during examinations for filariasis among man may be due to sensitization to non-human filariae. P.A.C.

(2b) Culbertson et al. have some evidence that neostibosan, a compound of pentavalent antimony, may be a useful anthelmintic to use against *Wuchereria bancrofti*. Of 35 patients, 20 appeared to be completely cured, while 10 lost most of their microfilariae during the period of observation and appeared likely to lose the rest within a further short period. However, 5 of the patients appeared to show no change. Control untreated patients all continued to show microfilariae in the circulating blood. The authors suggest that the drug acts upon the adult stage and that the microfilariae gradually disappear following death of the adult. It was not particularly toxic to the patient, the only symptoms being nausea or some vomiting. P.A.C.

(2c) The distribution of *Schistosomophora (Oncomelania) quadrasi* in the Leyte Valley is “spotty” and during May to August the snails are definitely confined to certain types of water. They occur only in the tributaries and feeder swamps of large or steeply banked rivers and are absent from small swift streams although service personnel acquired infection from bathing in the larger rivers. The relation of the snail and the disease to the habits of the local population are discussed. More than 64% of the rats trapped near an infected village had *Schistosoma japonicum*. The disease is not an occupational one in Leyte. R.T.L.

(2d) Warren et al. describe methods of preparing antigens from *Wuchereria bancrofti* and *Dirofilaria immitis*. These antigens were used with sera of patients believed to harbour filarial worms. Fixation of complement occurred with the antigen made from *D. immitis* only, though both antigens produced positive intradermal reactions in the same patients.

Hyperimmune sera from rabbits, produced by immunization with microfilarial suspensions of these two species, were examined by means of complement fixation and complement absorption methods and it was found that in both there were factors specific for the group and for the species. P.A.C.

3—American Journal of the Medical Sciences.

- a. ZARROW, M. & RIFKIN, H., 1946.—“Observations on the specificity and clinical use of *Dirofilaria immitis* antigen in the diagnosis of human filariasis (*Wuchereria bancrofti*).” 211 (1), 97–102.

(3a) Zarrow & Rifkin have investigated the sensitivity of patients with filariasis and intestinal helminths to intradermal injections of antigen made from *Dirofilaria immitis*. In a dilution of at least 1 : 4,000 the antigen gave positive results in 78% of the filariasis cases and there were no false positives due to intestinal helminths. The test was more useful than biopsies, for in a group of 53 cases 60% were shown to be positive by biopsy and 74% by skin test. Certain positive biopsy cases, however, gave negative skin reactions. Certain patients showed no circulating microfilariae though they were carriers of filaria as shown by examination of the lymph nodes. P.A.C.

4—American Journal of Tropical Medicine.

- a. FAUST, E. C., WRIGHT, W. H., McMULLEN, D. B. & HUNTER, III, G. W., 1946.—“The diagnosis of Schistosomiasis japonica. I. The symptoms, signs and physical findings characteristic of Schistosomiasis japonica at different stages in the development of the disease.” 26 (1), 87–112.
- b. FAUST, E. C., 1946.—“The diagnosis of Schistosomiasis japonica. II. The diagnostic characteristics of the eggs of the etiologic agent *Schistosoma japonicum*.” 26 (1), 113–123.
- c. AVERA, J. W., YOW, E. M., HARRELL, G. T. & FOWLER, E. B., 1946.—“An attempt by feeding to induce in animals reactivity to *Trichinella spiralis* in the absence of infection.” 26 (1), 125–131.

(4b) Faust describes and illustrates the various appearances of *Schistosoma japonicum* ova, mature and immature, viable and degenerate, as found in faeces. B.G.P.

(4c) Avera et al. were unable to induce positive skin reactivity in guinea-pigs and rabbits by repeated feeding of dead *Trichinella spiralis*. This result contrasts with that of Spindler & Cross [see Helm. Abs., Vol. VIII, No. 149b] who induced skin reactions in pigs fed non-living *Trichinella* larvae. The present experimental animals were examined by skin tests and by precipitation tests on the sera but all gave negative results. Guinea-pigs would not seem to be a very useful experimental animal for these tests, for animals known to be infected often gave only doubtful positives. Rabbits were much more satisfactory. P.A.C.

5—American Journal of Veterinary Research.

- a. LUCKER, J. T. & NEUMAYER, E. M., 1946.—“Experiments on the pathogenicity of hookworm (*Bunostomum trigonocephalum*) infections in lambs fed an adequate diet.” 7 (23), 101–122.

(5a) Experimentally produced infections of lambs show that *Bunostomum trigonocephalum* causes anaemia and depresses their rate of growth. Even heavily infected lambs begin to recover from their anaemia within 3½ to 4 months after infection. This may be due to the good housing, care and feeding they received. The application of larvae to the skin resulted in far heavier infections than when given orally. Exposure to infection by extremely large numbers of larvae inhibited, by some undetermined process, the development of adult worms. The prepatent period in these experiments was from 53 to 60 days. The paper goes into considerable detail regarding the detection of occult blood in the faeces, the value of weekly haemocrit, haemoglobin and red cell determinations, the relation of egg counts, worms recovered and anaemia, the symptoms and pathology. It is remarked that whereas serious and fatal results have been reported in comparatively high natural infections, a few hundred worms caused no noteworthy injury in healthy experimental animals which were cared for and well-fed. R.T.L.

6—American Midland Naturalist.

- a. LEIGH, W. H., 1946.—“Experimental studies on the life cycle of *Glythelmins quieta* (Stafford, 1900), a trematode of frogs.” 35 (2), 460–483.

(6a) Leigh has followed the life-cycle of *Glythelmins quieta* in the laboratory and field, and makes some emendations to the account of Rankin [see Helm. Abs., Vol. XIII, No. 65a]. The egg hatches only in the gut of *Physa gyrina*, *P. integra* and *Helisoma trivolvis* (the second is a new natural host and the third only under laboratory conditions). Mother sporocysts develop distally to the stomach and along the intestine of the snail; there is no evidence of cuticle, muscle cells, excretory system or birth pore, and they lack polarity. On production of daughter sporocysts the mother sporocyst is absorbed or disintegrates, producing the mucilaginous matrix of the daughter-sporocyst mass. Daughters do not migrate, and any movement is due to that of the contained cercariae: a birth pore is lacking. Liver tissue is invaded only in very long standing infections. Granddaughter sporocysts were found for the first time on two occasions. Mature cercariae emerge after 60 days under laboratory conditions; they are active and seek the surface (though there is no light-response)—this is correlated with their inability to penetrate any but fully metamorphosed frogs [see Helm. Abs., Vol. XIV, No. 123d]. Penetration can be completed in 4 minutes and migration below the epidermis within half an hour; encystment takes place in 3 hours. Experimental proof (by sewing up the mouths of frogs) is given for the belief that metacercarial infection always takes place by ingestion of the cast skin bearing the cysts. After 7 days there appears in the young worm an evanescent set of 8 or 9 medial glands with long branched ducts opening by 13 to 18 pores on either side of the prepharynx: these are quite distinct from the pharyngeal glands developing later. The testes develop early, but sexual maturity is probably not reached before three months following ingestion of metacercariae. Germ-cell cycle observations support the theory of polyembryony.

N.G.S.

7—Annales de Parasitologie Humaine et Comparée.

- a. DOLLFUS, R. P., 1946.—“Sur un distome du genre *Tamerlania* K. I. Skrjabin 1924 avec un catalogue des trématodes des reins d'oiseaux.” 21 (1/2), 25–73.
 b. PAVLOV, P., 1946.—“Infestation expérimentale d'animaux domestiques par *Brachylaemus*.” 21 (1/2), 94–95.
 c. DOLLFUS, R. P., 1946.—“Amoenitates helminthologicae. IV. *Kuhnia* N. G. Sproston 1945 = *Octostoma* J. Kühn 1829 [Trematoda, Monogenea].” 21 (1/2), 95–96.

(7a) Dollfus provides a key to the genera of trematodes occurring in the kidneys of birds (Renicolidae and Eucotyliidae). Definitions are given for the families and genera, and full criteria for the 27 species, for which separate keys are supplied, together with a tabular summary of hosts, parasites and their distribution. Translations from Nezhobinsky's paper (1926) in Russo-Serb make descriptions of several renicolid species available, and figures are reproduced. *Tamerlania gallica* n.sp. is described fully from *Garrulus glandarius*, *Pica pica* and *Corvus corone* from Richelieu, and is characterized by the presence of a small acetabulum between the lobed testes; but in a postscript Dollfus refers to papers seen only after the completion of his work, in which there is reference to the presence of an acetabulum in other forms. Maldonado's discovery of an acetabulum in *T. bragai* is claimed by Stunkard to be the first [See Helm. Abs., Vol. XIV, Nos. 123o and 123n respectively], but he points out that the priority must go to Shtrom [? Strom] (1935) whose studies on *T. zarudnyi*, from the Tadjikistan Expedition, revealed the presence of an acetabulum in this species. In view of this Dollfus thinks his new species may prove to be conspecific with the genotype.

N.G.S.

(7b) Pavlov found sporocysts, cercariae and metacercariae of *Brachylaemus* sp. in *Helicella obvia* near Tirnovo, N. Bulgaria, which he fed to rabbits, pigs, guinea-pigs, pigeons, white mice and chickens; autopsies yielded adults in rabbits, pigs and pigeons, but the other animals were negative—this is the first time a brachylaemid has been reared in a rabbit. The material was sent to Dollfus for identification, who recalls finding similar larvae from the same snail at Tirnovo: he still refrains from identifying them owing to our ignorance of the natural definitive host, though adult characters agree in general with those of *B. mesostomus*. Contrary to his

previous assumption, Dollfus finds that the larval characters of a caudal appendage and the absence of cuticular spines are not correlated. N.G.S.

(7c) Dollfus gives the documentary evidence for the validity of the generic name *Octostoma* Kühn, 1829, pointing out that though it was mentioned by Otto in 1823, in connection with the naming of *Cyclocotyla bellones*, it was not actually employed, and is therefore still available; hence, *Kuhnia* Sproston, 1945, falls as a synonym of *Octostoma* Kühn. In a footnote Dollfus recognizes his *Cyclobothrium charcoti* as conspecific with *Cyclocotyla bellones* Otto. N.G.S.

8—Annals of Applied Biology.

- a. THOMAS, I., BROWN, E. B. & WILLIS, R. J., 1946.—“The cereals root eelworm, *Heterodera major* (O. Schmidt) Franklin, in North Wales.” 33 (1), 63–65.

(8a) The authors have found the cereals root eelworm attacking oats in 42 fields on ten farms in Flintshire (detached) and Denbighshire. Crop losses were slight to severe. Cyst counts and crop rotations are given for 14 fields and show eelworm damage to be associated with frequent cropping with oats. Barley and wheat grow well in infected areas though a few cysts occurred on the roots. Cysts were found on the roots of *Lolium perenne*, *Bromus sterilis* and *Avena fatua*. M.T.F.

9—Archives of Dermatology and Syphilology.

- a. GOLDMAN, L. & ORTIZ, L. F., 1946.—“Types of dermatitis in American onchocerciasis.” 53 (2), 79–93.

(9a) The dermal complications of onchocerciasis were studied by the authors at Chiapas, Mexico, and they conclude that *mal de morado* (*dermatosis onchocercosa pigmentada*), acute and chronic oedemas, lichenifications and eczematoid reactions are some of the types of dermatitis due to this infection. The difficulties of interpreting critically these cutaneous reactions are outlined but it is emphasized that onchocerciasis provides a readily available clinical group for the study of the general principles of filarial infection in man. J.J.C.B.

10—Archives of Pathology.

- a. CHALGREN, W. S. & BAKER, A. B., 1946.—“Tropical diseases: involvement of the nervous system.” 41 (1), 66–117.

(10a) A section of Chalgren & Baker’s “General Review” deals with the part played by helminths in involvement of the nervous system (pp. 109 to 117), including (i) meningeal and cerebral involvement due to *Ascaris* toxins (migrating *Ascaris* larvae may also reach the brain, provoking little or no tissue reaction); (ii) nervous symptoms in hookworm infections, and in strongyloidiasis, the pathology of which is not clear; (iii) the various forms of filariasis, in which nervous symptoms may be associated with the presence of microfilariae in the brain; (iv) schistosomiasis, in which lesions of the central nervous system may be caused by circulating ova, and (theoretically) by adults maturing in the brain; and (v) paragonimiasis, in which adult flukes may wander into the brain. B.G.P.

11—Australian Veterinary Journal.

- a. PULLAR, E. M., 1946.—“A survey of Victorian canine and vulpine parasites. I. Material and methods used in the investigation. II. *Taenia multiceps*, *Taenia ovis* and *Echinococcus granulosus*.” 22 (1), 12–21.
b. PULLAR, E. M., 1946.—“A survey of Victorian canine and vulpine parasites. III. Platyhelminthes other than *Taenia multiceps*, *Taenia ovis* and *Echinococcus granulosus*.” 22 (2), 40–48.

(11a) An examination of dogs and foxes in Victoria has shown that *Taenia multiceps* is absent from the State. *T. ovis* occurs in about 5.1% of rural dogs, 1.7% of urban dogs and 13.5% of the foxes. It would seem, therefore, that the fox is an important definitive host of this parasite. *Echinococcus granulosus* was present in urban dogs but not in rural dogs or foxes. P.A.C.

(11b) A survey of the helminth parasites of dogs and foxes in Melbourne and district has shown that trematodes are rare in Australia, being completely absent in the material available for this survey. *Diphylobothrium erinacei* was found once in dogs but was relatively common in foxes, occurring in 27.6% of those examined. This is the first record of its presence in these hosts in Australia. *Dipylidium caninum* is a common parasite of urban dogs, less common in rural dogs and foxes. *Taenia hydatigena* was more common in rural dogs than either urban dogs or foxes. *Taenia pisiformis* was recovered equally from both groups of dogs but only in a small percentage of foxes, though *T. serialis* occurred in 16.5% of the foxes, 10% of the rural dogs and only 2.3% of the urban dogs. One tri-radiate specimen of *T. pisiformis* was seen. Observations have been made on the incidence of these parasites with regard to age, breed, sex and various other factors. Some unidentified and immature cestodes were also found. P.A.C.

12—Biológico.

- a. MELLO, M. J. DE, 1946.—“A ferida de verão dos equídeos.” 12 (3), 73-74.

(12a) Mello recommends treating the faeces of horses, known to be carrying *Habronema*, with 4% D.D.T. in order to kill the fly intermediary. B.G.P.

13—British Journal of Ophthalmology.

- a. COCKBURN, C., 1946.—“Ocular *Cysticercus cellulosae*. Report of a case of parasite in vitreous.” 30 (2), 65-74.

14—British Journal of Surgery.

- a. WOLFE, H. R. I. & SCHOFIELD, A. L., 1946.—“A case of filarial funiculitis.” 33 (132), 395-396.

(14a) That symptoms of obscure aetiology developing in personnel returning from service in the tropics may be manifestations of previous symptomless tropical infestation is illustrated by an account of a case of filarial funiculitis which developed 9 months after the patient's return to England from Africa. R.T.L.

15—Bulletin et Mémoires de la Société Médicale des Hôpitaux de Paris.

- a. HILLEMANT, P., VARAY, A., DEBRAY, J. R. & DUGUET, 1946.—“A propos d'un cas de distomatose hépatique.” 62 (1/2), 50-52.

16—Bulletin of the Torrey Botanical Club.

- a. DRECHSLER, C., 1946.—“A nematode-destroying phycomycete forming immotile spores in aerial evacuation tubes.” 73 (1), 1-17.

(16a) Under the name of *Gonimochaete horridula* n.g., n.sp. Drechsler describes a phycomycetous fungus which was found to attack and destroy free-living nematodes of the genus *Acrobeloides*. The new fungus occurred on maize-meal agar cultures which had been inoculated with small quantities of decaying leaves of the red maple (*Acer rubrum* L.) collected near Georgetown, Delaware, U.S.A. T.G.

17—Bulletin of Zoological Nomenclature.

- a. WITENBERG, G., 1946.—“On the holotype of *Fasciola ovata* Rudolphi, 1803 (Class Trematoda, Order Digenea).” 1 (8), 176.

(17a) Since 2 species were found by Braun in the syntype material of *Fasciola ovata* Rud. 1803, and one of them was selected by him as *Prosthogonimus ovatus* (Rud.), Witenberg asks if there is provision by the International Code for the selection of a lectotype. N.G.S.

18—Canadian Journal of Comparative Medicine.

- a. CONNELL, R., 1946.—“Poultry diseases common to farm flocks.” 10 (2), 42–48.
 b. BARKER, C. A. V., 1946.—“Method for the recovery of *Nematodirus* adults, eggs and larvae for experimental purposes.” 10 (4), 117–119.

(18a) In Connell's practice in Canada, intestinal parasites of poultry have proved of little importance except for occasional infestations of young turkeys with the tapeworm, *Choanotaenia infundibulum*. This was successfully treated with 1 c.c. of carbon tetrachloride given in capsule after 12 hours starvation. R.T.L.

(18b) Barker has collected large quantities of larvae of *Nematodirus* spp. by removing adults from the proximal 20 feet of small intestine of unthrifty lambs. The contents are washed and sieved and the adult worms floated up in saline. The worms are cut up and macerated in water in a sieve lined with bolting silk. The fluid obtained by pressing the contents through the silk is allowed to settle, the sediment needing only a little washing, before siphoning out the eggs in a very clean condition. Large numbers of larvae hatched from these eggs within 14 days. P.A.C.

19—Canadian Journal of Public Health.

- a. KUITUNEN-EKBAUM, E., 1946.—“Phenothiazine in the treatment of enterobiasis (II).” 37 (3), 103–113.

(19a) An analysis is given of the treatment of 900 children and 375 adults with phenothiazine against *Enterobius vermicularis*. The dose varied from 0.25 gm. to 1.75 gm. daily, according to age, for 4 to 6 days. The efficiency of treatment was revealed by the use of perianal swabs, a second and occasionally third course of treatment was found necessary in some cases before negative swabs were obtained. The toxic reactions are enumerated under the headings of skin reaction, fever and miscellaneous. J.W.G.L.

20—Canadian Journal of Research. Section D. Zoological Sciences.

- a. MILLER, M. J., 1946.—“The cercaria of *Apophallus brevis*.” 24 (2), 27–29.

(20a) A description is given by Miller of the oculate pleurolophocercous cercaria of *Apophallus brevis* (the metacercaria of which causes black spot disease in trout in Canada) from the snail *Ammicola limosa*. The cercaria is almost devoid of the golden brown pigment, and its anterior region is covered with minute spines, but posteriorly it has long threadlike prolongations of the cuticle, which are easily lost. Seven pairs of cephalic glands have their ducts in two groups (three in the outer and four in the inner), the acetabulum is obscure and the long tail has a dorsal fin fold which also curves ventrally for about half its length. The swimming movements are active (5 per minute); there is no shadow response, but the cercaria is weakly phototactic. N.G.S.

21—Canadian Medical Association Journal.

- a. WILLIAMS, T. H., 1946.—“Intestinal parasites in the Canadian Armed Forces.” 54 (3), 249–252.
 b. DAVIES, J. A., 1946.—“Echinococcal cyst arising from the prostate.” 54 (3), 268–271.

(21a) A surprising feature of this survey of 500 Canadian personnel returned from subtropical areas is the low incidence of helminths among the intestinal parasites. *Trichuris* was found in 8, *Ascaris* in 3, and *Enterobius* in 1. Faecal specimens were examined by direct smear, and by zinc sulphate flotation if the former was negative [this presumably means negative for all parasites]. B.G.P.

22—Current Science.

- a. SARWAR, M. M., 1946.—“A new species of genus *Trichuris* from cattle and buffaloes.” 15 (2), 52–53.

(22a) Sarwar describes *Trichuris indica* n.sp. from cattle and buffaloes in the Punjab and United Provinces. The characteristic features are large spines on the sheath, caudal papillae and the shape of the termination of the spicule. P.A.C.

23—East African Medical Journal.

- a. DICK, G. W. A. & McCARTHY, D. D., 1946.—“The absence of anaemia in hookworm infestation in East African personnel.” **23** (1), 19–22.

24—Farming in South Africa.

- a. ORTLEPP, R. J., 1946.—“Phenothiazine: a remedy for internal parasites.” **21** (241), 249–250, 270, 275.

25—Indian Medical Gazette.

- a. SUBRAMANIAM, R., 1946.—“Somatic taeniasis (solium cysticercosis).” **81** (2), 64–65.
 b. GREVAL, S. D. S. & SUNDAR RAO, S., 1946.—“Activation of the human system in filariasis.” **81** (4/5), 176–179.

(25a) A case of somatic cysticercosis is reported in a Hindu. The eosinophil count was 14⁰/₁₀. A number of “blubbery” nodules were felt over the whole body especially in the neck, arms, thighs and back. The central nervous system was normal. R.T.L.

(25b) Greval & Sundar Rao endeavour to rebut the generally accepted view that filariasis is a cause of mental depression. They give instances in support of their own view that unless filariasis has already become crippling or seriously disabling it is mentally and sexually activating. As the erysipeloid attacks can now be controlled quickly with sulphonamides the prognosis for future sufferers is optimistic. They suggest that an adult filaria may function as a gonadal implantation. R.T.L.

26—Indian Veterinary Journal.

- a. -BAHL, B. D., 1946.—“Carbon tetrachloride in a nematode infestation in a horse.” **22** (4), 291–292.
 b. SARWAR, M. M., 1946.—“Two species of the nematode genus *Setaria* Viborg.” **22** (6), 405–409.
 c. PHANSE, B. R., 1946.—“*Filaria oculi* in both the eyes of a cow.” [Correspondence.] **22** (6), 451–452.
 d. SRIVASTAVA, R. N., 1946.—“Observations on ocular filariasis.” [Correspondence.] **22** (6), 452.

(26a) Bahl finds that the toxicity of carbon tetrachloride is mitigated and the drug rapidly excreted if mixed with a saturated solution of magnesium sulphate. He describes a case of strongylid infection in the horse which was successfully treated by dosing with 2 oz. of carbon tetrachloride thoroughly mixed with 6 oz. of saturated magnesium sulphate solution. R.T.L.

(26b) Sarwar discusses the validity of the species *Setaria digitata* (v. Linstow, 1906) and *S. cervi* (Rud., 1819). He describes the morphological characters of the cephalic and caudal extremities, illustrated by camera lucida drawings, of specimens collected from buffaloes and cattle in India and concludes that *S. digitata* is not a synonym of *S. cervi* which is recorded for the first time from the sheep. P.L.ler.

(26c) Phanse records a case of extra-ocular worms “*Thelazia Rhodesia*” [*Thelazia rhodesi*] in a cow. He observes that although 12 worms were removed from the right eye and 14 from the left, no lesions attributable to the presence of these worms were detected. P.L.ler.

(26d) Srivastava notes that in 15 cases of extra ocular filariasis, due to *Thelazia rhodesi* under the membrana nictitans, the affected animals were usually debilitated and ill-nourished and ranged in age from 18 months to 13 years. The sudden lameness observed in some of the stock after they had been cast and secured for treatment is attributed to temporary radial paralysis caused by stretching of the leg in securing and controlling the animal. P.L.ler.

27—Instituto de Parasitología y Enfermedades Parasitarias. Facultad de Agronomía y Veterinaria. Universidad de Buenos Aires.

- a. ROSENBUSCH, F. & GELORMINI, N., 1946.—“Experiencias sobre hidatidosis.” **3** (6), 39–66. [English summary p. 65.]

(27a) Summarizing recent work on hydatid in Buenos Aires, Rosenbusch & Gelormini state that the adult lives in the dog for a period varying between 5 and 20 months. Experimental

infections in sheep show a rate of cyst-growth much slower than suggested by Leuckart (e.g. 10 to 20 mm. in 23 months), possibly due to a heavier infection. Eggs administered to sheep and cattle by various parenteral routes failed to develop, as also did living scolices and brood capsules, thus suggesting that secondary hydatidosis does not occur in these animals. They find that repeated infections of dogs lead to a marked resistance. Cats could not be infected.

B.G.P.

28—Journal of the American Veterinary Medical Association.

- a. WARWICK, B. L., TURK, R. D. & BERRY, R. O., 1946.—“Abortion in sheep following the administration of phenothiazine.” 108 (826), 41-42.
- b. RIDGWAY, J., 1946.—“Eye-worm in a German shepherd.” 108 (828), 165.
- c. WARD, J. W. & SCALES, J. W., 1946.—“A preliminary report on use of lead arsenate for removal of the sheep tapeworm, *Moniezia expansa*.” 108 (831), 425-426.

(28b) This is a clinical report on the presence of *Thelazia californiensis* in a German shepherd dog [dog is apparently omitted from the title of the paper].

R.T.L.

(28c) Treatment of 13 lambs with lead arsenate, using 0.5 or 1.0 gm. doses, caused the expulsion of *Moniezia expansa*. Chains of the tapeworm were recovered from the faeces for 4 days after treatment, after which time the faeces were negative for *Moniezia* eggs. The diarrhoea disappeared and did not reappear during the following 8 months, but it was found necessary to re-dose 2 of the lambs 5 weeks after the initial treatment.

J.W.G.L.

29—Journal of Bone and Joint Surgery.

- a. COHEN, H. H., 1946.—“Trichinosis as a cause of meralgia paraesthetica.” 28 (1), 153-156.

(29a) Owing to the peculiar location of the lateral femoral cutaneous nerve in its passage over or under the sartorius muscle it is extremely susceptible to compression. A case is reported in which a fibrous band caused by trichinosis of muscle was responsible for paraesthesia, pains and objective sensory loss over the antero-lateral aspect of the thigh. There was a history of symptoms due probably to trichinosis 5 years previously. At operation the lateral femoral cutaneous nerve was found to be markedly encroached upon by a thick fibrous band in intimate contact with the sartorius muscle in which numerous *Trichinella* cysts were afterwards detected microscopically.

R.T.L.

30—Journal of the Department of Agriculture. Victoria.

- a. NICOL, G., 1946.—“Parasites of the horse.” 44 (2), 53-56.

31—Journal of Infectious Diseases.

- a. WHARTON, D. R. A. & STELMA, T., 1946.—“Comparative cutaneous tests for filariasis with antigens of different dilutions.” 78 (1), 49-59.

(31a) Wharton & Stelma have investigated the value of certain antigens in the cutaneous test for filariasis. 286 subjects were available, divided into 4 groups: (i) filarial seamen from the Dutch West Indies, (ii) a group of individuals showing various allergies, (iii) individuals with a past history of filariasis, and (iv) men under observation who may have acquired the disease. The antigen was made from *Dirofilaria immitis* with a control antigen consisting of a saline solution of dog serum. Various dilutions were used and a dose of 0.01 ml. of a dilution 1:8,000 was found to be very effective, though a number of false positives occurred in the tests. At higher dilutions there were fewer false positives but not all infected subjects gave a positive result. There seemed to be no positives in subjects harbouring other helminth infestations, and there was no toxic action.

P.A.C.

32—Journal of the Ministry of Agriculture. London.

- a. STANILAND, L. N., 1946.—“Potato root eelworm in the south-west.” 52 (12), 538-540, 541.
- b. ELLENBY, C., 1946.—“Potato root eelworm and mustard oil.” 53 (5), 219-223.

(32a) Staniland states that though most gardens and allotments in Devon and Cornwall are infested with potato root eelworm, a large proportion of commercial holdings where potatoes are grown are still free. There is however severe infestation in much of the early ware growing

areas, especially where potatoes have been grown frequently. The results of thorough surveys of the Torquay Watershed and Penzance areas are given: in the former only 5 fields out of 86 sampled were free from infection, while in the latter 2 fields out of 400 were clean and 57% were classed as moderately or heavily infested. In the Penzance area severe damage is caused by relatively light infestations. The author states that eelworm has been introduced with seed potatoes from Scotland and Lincolnshire, and is spread from manure heaps containing potato haulms, and with broccoli plants transplanted from infested soil.

M.T.F.

(32b) Ellenby gives a short account of work which he has published before [see Helm. Abs., Vol. XIV, Nos. 7a & 74b] on the control of potato root eelworm by the addition of mustard oil (allyl isothiocyanate) to infested soil. This chemical is stated to mask the presence of potato root excretion so that the eelworm larvae are not stimulated to hatch by the potatoes growing in the treated soil. Where mustard oil was applied in the drills Ellenby obtained increased yields of potatoes.

M.T.F.

33—Journal of Parasitology.

- a. THOMAS, L. J., 1946.—“New pseudophyllidean cestodes from the Great Lakes region. I. *Diphyllbothrium oblongatum* n.sp. from gulls.” 32 (1), 1-6.
- b. DOUGHERTY, E. C. & GOBLE, F. C., 1946.—“The genus *Protostrongylus* Kamenskii, 1905 (Nematoda: Metastrongylidae), and its relatives; preliminary note.” 32 (1), 7-16.
- c. SWANSON, G. & ERICKSON, A. B., 1946.—“*Alaria taxideae* n.sp., from the badger and other mustelids.” 32 (1), 17-19.
- d. AVERY, J. L., 1946.—“Parasitic infections among natives of the Samarai District, Papua, New Guinea.” 32 (1), 25-29.
- e. VOGEL, M., 1946.—“A new anoplocephalid cestode, *Andrya neotomae*, from the wood rat *Neotoma fuscipes*.” 32 (1), 36-39.
- f. LARSH, JR., J. E., 1946.—“A comparison of the percentage development of a mouse strain of *Hymenolepis* in alcoholic and non-alcoholic rats and mice.” 32 (1), 61-63.
- g. MAGATH, T. B. & MATHIESON, D. R., 1946.—“Factors affecting the hatching of ova of *Schistosoma japonicum*.” 32 (1), 64-68.
- h. MORGAN, B. B., 1946.—“A redescription of *Physaloptera limbata* Leidy, 1856 (Nematoda: Physalopterinae).” 32 (1), 69-71.
- i. LARSH, JR., J. E., 1946.—“The effect of alcohol on the development of acquired immunity to *Hymenolepis* in mice.” 32 (1), 72-78.
- j. DORIN, R. P., 1946.—“The preparation and demonstration of an antiserum for *Trichinella spiralis*.” 32 (1), 83-86.
- k. KARTMAN, L., 1946.—“A note on anopheline vectors of *Wuchereria bancrofti* in West Africa.” 32 (1), 91-92.
- l. RANKIN, JR., J. S., 1946.—“Examination of tube-dwelling polychaete annelids for larval trematode infections.” 32 (1), 92.
- m. BONELLA-NAAR, A., 1946.—“Expulsion of tapeworm proglottids from artificial anus.” 32 (1), 93.
- n. RAUSCH, R., 1946.—“New host records for *Microphallus ovatus* Osborn, 1919.” 32 (1), 93-94.
- o. RAUSCH, R., 1946.—“New records of *Macracanthorhynchus hirudinaceus* in Sciuridae.” 32 (1), 94.
- p. SMITH, V. S., 1946.—“Studies on reactions of rat serum to eggs of *Trichosomoides crassicauda*, a nematode of the urinary bladder.” 32 (2), 136-141.
- q. SMITH, V. S., 1946.—“Are vesical calculi associated with *Trichosomoides crassicauda*, the common bladder nematode of rats?” 32 (2), 142-149.
- r. TUBANGUI, M. A., 1946.—“Preliminary notes on the crustacean vector of the mammalian lung fluke (*Paragonimus*) in the Philippines.” 32 (2), 150-151.
- s. TUBANGUI, M. A., 1946.—“*Plagiorchoides potamonides* (Plagiorchidae), a new trematode found in experimental rats.” 32 (2), 152-153.
- t. TUBANGUI, M. A. & MASILUNGAN, V. A., 1946.—“On two acanthocephala from the Philippines.” 32 (2), 154-155.
- u. WICKLEN, J. H. VON, 1946.—“The trematode genus *Opecoeloides* and related genera, with a description of *Opecoeloides polynemi* n.sp.” 32 (2), 156-163.
- v. CHANDLER, A. C., 1946.—“*Trichuris peromysci* n.sp. from *Peromyscus californicus*, and further notes on *T. perognathi* Chandler, 1945.” 32 (2), 208.
- w. RAUSCH, R., 1946.—“The raccoon, a new host for *Microphallus* sp., with additional notes on *M. ovatus* from turtles.” 32 (2), 208-209.
- x. HILL, H. C., 1946.—“Observations on *Ancylostoma* and *Toxocara* infection in experimental and stock dogs.” 32 (2), 210.

(33a) Thomas describes *Diphyllbothrium oblongatum* n.sp. from the intestine of *Larus argentatus* in the region of Lake Michigan. It is a small worm approaching *D. strictus* morphologically but differing in the length of the unsegmented neck, the coiling and extent of the uterus, and the presence of a cirrus sac. Proceroids develop in *Diaptomus oregonensis* and the plerocercoids in the stomach of *Leucichthys arctedi*. P.A.C.

(33b) Dougherty & Goble review the subfamily Protostrongylinae Kamenskii, 1905. They recognize 10 genera, of which 2 are new, and give a key for their easier identification. The genera are *Muellerius*, *Neostongylus*, *Varestrongylus*, *Elaphostongylus*, *Pneumostongylus*, *Cystocaulus*, *Spiculocaulus*, *Protostrongylus*, *Leptostongylus* n.g. and *Orthostongylus* n.g. *Orthostongylus* contains the species previously known as *Protostrongylus macrotis* while *Leptostongylus* is made to hold the species *Pneumostongylus alpenae* and *Protostrongylus capreoli*. There are 29 species mentioned with their synonyms and type hosts. P.A.C.

(33c) *Alaria taxideae* n.sp. is described by Swanson & Erickson from the small intestine of *Taxidea taxus*, *Mustela cicognanii*, *M. frenata*, *Mephitis mephitis* and *Spilogale putorius*—all from Minnesota. The new species is characterized mainly by the exceptionally large pharynx. N.G.S.

(33d) In the Samarai District of New Guinea only one native out of 53 persons examined was infected with *Trichuris trichiura*, whereas 74.6% had hookworm in a camp located on a coral ridge adjoining a salt-water bay, but in a village on upland clay soil several miles inland *Trichuris* occurred in 42% and hookworm in 89.3% out of 300 persons. There were no *Ascaris*, *Strongyloides* or tapeworms. R.T.L.

(33e) Voge describes *Andrya neotomae* n.sp. from the small intestine of *Neotoma fuscipes* in California. It can be distinguished by the posterior position of the genital pores, the number of testes and their position, absence of a prostate gland and the length of the ventral excretory duct. P.A.C.

(33f) Larsh shows that high concentrations of alcohol have a detrimental effect on the resistance of rats to infestation with *Hymenolepis nana* var. *fraterna*. Cysticercoid development was at least 2.4 times as heavy in alcoholic rats as in the controls. These figures are very similar to those found in similar experiments on mice [see Helm. Abs., Vol. XIV, No. 123m] where alcoholic mice had 2.1 times as many cysticercoids as the non-alcoholic controls. P.A.C.

(33g) The normal salinity of the body and the body temperature are sufficiently high to prevent hatching of *Schistosoma japonicum* eggs in the tissues or the intestinal contents. A lower temperature, clean water and a sufficiency of oxygen are required for hatching outside the body. The miracidia are most active between 28°C. and 33°C. They are killed by sodium chloride 1.3% in 2 minutes and in one hour in a 0.66% concentration. In the Leyte Valley, Philippine Islands, a number of streams are tidal and even if intermediary hosts were present the miracidia would not be able to infect them. R.T.L.

(33h) There are about 42 valid species in the genus *Physaloptera*. *P. limbata*, which is redescribed and illustrated, belongs to a group with a didelphys type of uterus with a common trunk in which the male has 4 pairs of pedunculated caudal papillae. R.T.L.

(33i) Larsh demonstrates that the effect of alcohol is to delay the development of a response to antigenic stimulation in rats infested with *Hymenolepis nana* var. *fraterna*. When alcoholic treatment was begun after infestation, it appeared to have no effect on reinfection several weeks later but the opposite was the case when treatment was given before infection. If reinfection was delayed for 72 hours or one week, the alcoholic mice had recovered and were able to withstand the second infection. When only 1 or 2 days were allowed to elapse, however, the defence mechanism had been broken down by the alcohol and reinfection readily occurred. P.A.C.

(33j) An antiserum to the larvae of *Trichinella spiralis* in high titre has been demonstrated by Dorin using the method of Hektoen & Walker. *Trichinella* larvae are adsorbed on to aluminium cream and injected into rabbits. The antigen is made from dried powdered larvae in neutral Coca's solution. The antiserum obtained later from the rabbit was specific for

Trichinella when examined by precipitation tests. Dorin further showed that animals that had been actively immunized were able to resist further infestations and that immune serum can prevent infection in animals which had no other protective means. P.A.C.

(33k) Kartman has confirmed at Dakar, French West Africa, that *Anopheles gambiae* and *A. funestus* are excellent hosts for *Wuchereria bancrofti*, the percentage of natural infections in villages ranging from 13% to 54.1% in the former species and from 2.4% to 18.5% in the latter. R.T.L.

(33l) Rankin examined during the summer 4,254 tubicolous polychaetes for infections with larval trematodes and all were negative except *Hydroides*, 12 of the 1,500 of which contained *Cercaria loossi*. In all, 15 different species were examined. N.G.S.

(33n) *Microphallus ovatus* has been found by Rausch in 4 of the 127 turtles he examined in Ohio, and in 2 of these more than 500 *M. ovatus* were found, several in one of them being in coitu. It is noted that they agreed with previous descriptions of this species (from fishes), and were unlike *M. opacus*. The host species were: *Chrysemys bellii marginata*, *Chelydra serpentina* and *Graptemys geographica*, and the infected turtles all came from streams, so that it is assumed that either the crayfish or the snail intermediate host is absent in the ponds. N.G.S.

(33o) Rausch records for the first time the presence of *Macracanthorhynchus hirudinaceus* among the Scuridae, the hosts being *Sciurus niger rufiventer* and *Tamias striatus*. P.A.C.

(33p) Smith was not able to devise a means of estimating the infestation of rats with *Trichosomoides crassicauda* as the collection of eggs from urine was impractical and worms recovered at post-mortem were too few in number to indicate if any resistance had been acquired as the result of repeated infection. However the effect of serum from the infested rats on cultures of eggs was strikingly different from that of control rats. In immune sera precipitates developed around embryonated eggs though the larvae which hatched appeared to be unaffected by the precipitates. The author believes the reaction to be of an antigen-antibody nature, though as eggs do not normally enter the blood stream it is not easy to see how they can act directly as antigens. P.A.C.

(33q) The mucoid calculi which occur in rats infected with *Trichosomoides crassicauda* are attributed to the occasional back-flow of the mucoid secretion of the seminal vesicles and prostatic gland into the bladder. The presence of the parasites in the vesical epithelium is thought to induce an excess of mucus secretion in the bladder, further favouring calculus formation. Of 41 instances of mucoid calculi all but 2 occurred in male rats. R.T.L.

(33r) Encysted cercariae of *Paragonimus* were found in 60 out of 216 crabs, *Potamon* (*Potamon*) sp., collected at Naga, Camarines Sur, Luzon. The cysts were most numerous in the leg muscles, then in the gills, liver and thoracic muscles. The metacercariae fed to rats and cats developed into adults. The infective stage can survive in pure vinegar for 2 to 2½ hours. The practice of salting crabs and keeping them for 24 hours with the salt before they are eaten is a good preventive measure. Although various species of local *Melania* were examined none were infected. R.T.L.

(33s) Experimental feeding of rats with *Potamon* (*Potamon*) sp. resulted not only in the production of adult *Paragonimus* but also in a new species of *Plagiorchoides* named *P. potamonides* n.sp. This differs from the type and only other species, *P. noblei*, in the lobulated ovary and testes and the presence of wart-like elevations on the cirrus. It is suggested that the new species is a potential parasite of man. R.T.L.

(33t) From a native chicken in the Philippines *Leiperacanthus gallinarum* Bhalerao, 1937 and *Filisoma rizalinum* n.sp. are described. The latter differs from *F. indicum* and *F. bucerium* in having 2 submedian dorsal longitudinal rows of proboscis hooks. R.T.L.

(33u) The type of *Distomum vitellosum* Linton (the genotype of *Cymbophallus* Linton) has been restudied, and von Wicklen finds that in addition to a protrusible acetabulum with 5 papillae, it has an accessory sucker: characters making it conspecific with *C. manteri* but also congeneric with *Opecoeloides* Odhner, to which it is transferred together with *Anisoporus*

eucinostomi Manter, which is shown to possess a uroproct. *Opecoeloides polynemi* n.sp. is described with 10 acetabular papillae and a uroproct, from *Polynemus octonemus* from the Gulf of Mexico. *C. vulgaris* Manter becomes the type of *Pseudopecoelus* n.g., in which the intestinal crura end blindly, and the accessory sucker and acetabular papillae are lacking (including also *C. japonicus* Yamaguti and *C. elongatus* Yamaguti). *C. fimbriatus* of Manter is not *C. fimbriatus* Linton, which has two ani, fimbriated acetabular papillae and an accessory sucker. The latter becomes the type of *Fimbriatus* n.g., and the former lacking these characters, is renamed *Pseudopecoelus tortugae* n.sp. N.G.S.

(33v) *Trichuris peromysci* n.sp. from *Peromyscus californicus* in California differs from species already recorded from North American rodents by the very large eggs, the length of the anterior portion of the body, the absence of bilobing of the male tail and the almost terminal anus of the female. It is noted that in *T. perognathi* from Arizona the vulva is not situated on a cuticular evagination, which is regarded as an evanescent character. R.T.L.

(33w) A species of *Microphallus* is described from the raccoon, *Procyon lotor*, and differentiated from *M. opacus* and *M. ovatus* but is not yet named as new, since it is impossible to determine if the differences are specific or due to development in an unusual host. R.T.L.

(33x) In 24 laboratory dogs kept for experiment, *Ancylostoma caninum* occurred in 79%, *Toxocara canis* in 25%. It is suggested that such infections may markedly influence the final result of any experiments for which these animals could be used. R.T.L.

34—Journal of Pediatrics.

- a. BROWN, H. W., 1946.—“The use of gentian violet in children infected with *Ascaris lumbricoides*.” 28 (2), 160-164.

(34a) Experiments suggest that gentian violet may be slightly effective against *Ascaris lumbricoides* in children and it does not appear to stimulate the worms to migrate. The drug will remove Enterobius. P.A.C.

35—Journal of the Royal Army Medical Corps.

- a. DAY, C. L., WOOD, E. A. & LANE, W. F., 1946.—“Observations on an outbreak of trichinosis among German prisoners of war.” 86 (2), 58-63.

(35a) Trichinosis involving 705 German prisoners of war occurred in May 1945 in Northern Ireland. Local pork sausages were the most likely cause of the infection. The minimum incubation period was 15 days and the average was 3½ weeks. No evidence as to the source of the infection of the pork was obtained. An account is given of the clinical and laboratory findings in 27 patients who were admitted to hospital. R.T.L.

36—Journal of Tropical Medicine and Hygiene.

- a. MUIR, E., 1946.—“Elephantiasis and septic infection.” 48 (6), 145-148.
b. GREIG, E. D. W., 1946.—“On tropical eosinophilia associated with pulmonary signs (Loeffler's syndrome).” 48 (6), 149-151.

(36a) Elephantiasis arabum or indica, due to filariasis, and elephantiasis graecorum, associated with leprosy, are here compared by Muir. In both cases there is lymphatic obstruction and lymph stasis which may be complicated by toxins from the causal organism and, later, by septic infection. B.G.P.

(36b) Greig discusses the possible aetiology of Loeffler's syndrome (*Ascaris* and mites have both been suggested) and its treatment by arsenical therapy. B.G.P.

37—Journal of the Washington Academy of Sciences.

- a. STEINER, G. & ALBIN, F. E., 1946.—“Resuscitation of the nematode *Tylenchus polyhyphus* n.sp., after almost 39 years' dormancy.” 36 (3), 97-99.

(37a) Steiner & Albin report the fact that when a leaf from a rye seedling, stored as a dried herbarium specimen since 1906, was moistened in June 1945, two young females and

3 larval nematodes revived, having retained the power of reviviscence for almost 39 years. The worms are very small forms for which the authors have erected a new species under the name *Tylenchus polyhyphus* n.sp. An illustrated technical description of them is included in the paper.
T.G.

38—Journal of Wildlife Management.

- a. RAUSCH, R. L., 1946.—“Parasites of Ohio muskrats.” 10 (1), 70.

(38a) Rausch records 4 trematodes, 2 nematodes and one cestode species from the examination of 70 muskrats received from 7 localities in Ohio. There was little evidence of pathological conditions.
J.W.G.L.

39—Kongelige Norske Videnskabers Selskabs Forhandlinge.

- a. ALLGÉN, C. A., 1946.—“Zur Kenntnis norwegischer Nematoden. VI. Neue freilebende marine Nematoden von der Insel Frøya.” 18, 160–162.
b. ALLGÉN, C. A., 1946.—“Zur Kenntnis norwegischer Nematoden. VII. Weitere neue Nematoden aus der Strandzone bei Frøya.” 18, 163–165.
c. ALLGÉN, C. A., 1946.—“Zur Kenntnis norwegischer Nematoden. VIII. Neue freilebende marine Nematoden von Rørvik.” 18, 166–169.

(39a) Allgén describes, without illustrations, the following Norwegian free-living marine nematodes from the island of Frøya in Trondheimsfjord, namely, *Mononcholaimus norvegicus* n.sp., *Eurystomatina frøyense* n.sp., *Desmodora frøyensis* n.sp. and *Hyphodontolaimus norvegicus* n.sp.
T.G.

(39b) In this communication Allgén describes 3 more new marine free-living nematodes from the shore zone of the island of Frøya, namely, *Halaphanolaimus norvegicus* n.sp., *Theristus norvegicus* n.sp. and *Eulinhomoeus gracilicaudatus* n.sp.
T.G.

(39c) Allgén gives unillustrated descriptions of the 5 following free-living marine nematodes obtained from a sample of mud collected at Rørvik, namely, *Oncholaimus rørvikensis* n.sp., *Siphonolaimus rørvikensis* n.sp., *Theristus oistopiculum* n.sp., *Metalinhomoeus marphyensis* n.sp. and *Southernia rørvikensis* n.sp.
T.G.

40—Lancet.

- a. ALVES, W. & BLAIR, D. M., 1946.—“Schistosomiasis: intensive treatment with antimony.” Year 1946, 1 (6384), 9–12.
b. MILLS, W. G., 1946.—“Treatment of schistosomiasis.” Year 1946, 1 (6384), 12–13.
c. EDITORIAL, 1946.—“Intensive treatment of bilharziasis.” Year 1946, 1 (6384), 21–22.
d. EDWARDS, C., 1946.—“Cerebral cysticercosis without epilepsy.” Year 1946, 1 (6397), 500–501.

(40a) The application of the multiple-syringe technique for the 2-day treatment of schistosomiasis already reported by Alves in 1945 [see Helm. Abs., Vol. XIV, No. 54b] has been extended to 100 further cases by Alves & Blair. The dose of sodium antimonyl tartrate was standardized at 12 mg. per Kg. body weight which is almost equivalent to one grain per 12 lb. body weight. This total dose was administered intravenously in 6 injections given at 9 a.m., 12 noon and 3 p.m. on each of two successive days by a 10 c.cm. all-glass syringe with an eccentric nozzle. In no case was it necessary to reduce the dose on account of untoward symptoms. Euphoria was a striking feature in many of the cases on the day after the conclusion of the treatment. No viable eggs were found at 2 or 3 months afterwards in the cases followed up. If employed on mass lines this novel method of treatment should result in a huge increase in the turn-over of patients and a large reduction in desertions and uncompleted “cures”.
R.T.L.

(40b) By giving intramuscular injections of anthiomaline or stibophen in concentrated dosage approaching toxicity Mills cured over 90% of 46 cases of vesical schistosomiasis in a military hospital in West Africa. 4 c.cm. of anthiomaline was injected daily for a fortnight, Sundays excepted (=total antimony 0.46 gm.). Stibophen was similarly administered in 5

c.cm. doses, Saturdays and Sundays excepted (= total antimony 0.49 gm.). A hexamine mixture was given throughout and the patients were encouraged to stay in bed during the second week. R.T.L.

41—Medical Journal of Australia.

- a. SANGSTER, C. B., 1946.—“Hookworm disease in Australian soldiers, with reports of cases.” 33rd Year, 1 (12), 385–393.

(41a) Hookworm infection was common among Australian army personnel serving in New Guinea and its adjacent islands. 28% of an infantry battalion on Bougainville, Solomon Islands, were positive to a single faeces examination. Both *Necator americanus* and *Ancylostoma duodenale* were recorded. The infections were mild in the great majority of the cases but 3 acute cases are described with severe anaemia and melaena. In many instances the eosinophilia reached from 30% to 40%. R.T.L.

42—Military Surgeon.

- a. COGGESHALL, L. T., 1946.—“Care of the filariasis patient.” 98 (2), 89–94.
 b. SCHAPIRO, L. & SCHAPIRO, M. M., 1946.—“Hookworm disease—its eradication again an international problem.” 98 (2), 109–119.
 c. SCHAPIRO, M. M., 1946.—“Hookworm disease in Latin America—a historical outline.” 98 (4), 309–320.

43—Mycologia.

- a. DRECHSLER, C., 1946.—“A clamp-bearing fungus parasitic and predaceous on nematodes.” 38 (1), 1–23.

(43a) Under the name of *Nematoctonus haptocladus* n.sp., Drechsler describes in detail another fungus which captures and destroys small free-living eelworms, especially *Panagrolaimus* sp. The newly described fungus occurred on nutrient agar plates inoculated with small quantities of decaying plant material, of very mixed character, obtained at Greeley, Colorado, U.S.A. The hyphae submerged in the agar send up delicate stalks which ascend above the surface of the medium and each stalk bears a constricted bilobed body 3.5 μ to 5.5 μ long by 2 μ to 3 μ wide which soon becomes surrounded with a glutinous droplet. Nematodes crawling on the agar surface and coming into contact with such a body are held fast by it and are subsequently parasitized; their contents being destroyed by assimilative hyphae growing out from it. Even if a larger nematode is powerful enough to break off the adhesive body from its stalk, the body remains attached to the worm which is afterwards destroyed in the same manner. T.G.

44—Nature. London.

- a. WHITTEN, L. K., CLARE, N. T. & FILMER, D. B., 1946.—“A photosensitized keratitis in cattle dosed with phenothiazine.” [Correspondence.] 157 (3982), 232.
 b. ELLENBY, C., 1946.—“Nature of the cyst wall of the potato-root eelworm *Heterodera rostochiensis*, Wollenweber, and its permeability to water.” [Correspondence.] 157 (3984), 302–303.
 c. CAWSTON, F. G., 1946.—“Influence of a decreasing rainfall on *Physopsis africana* Krauss.” [Correspondence.] 157 (3987), 413.
 d. ELLENBY, C., 1946.—“Ecology of the eelworm cyst.” 157 (3988), 451–452.
 e. MANSON-BAHR, P., 1946.—“Tropical medicine in the British Empire. Suggestions for the future.” 157 (4000), 858–860.
 f. HAWKING, F. & BURROUGHS, A. M., 1946.—“Transmission of *Litomosoides carinii* to mice and hamsters.” [Correspondence.] 158 (4003), 98.

(44b) Ellenby has shown that in maturing *Heterodera rostochiensis* cysts the change in colour of the cyst wall from white to brown is due to the activity of polyphenol oxidase, and he has detected polyphenols in the cyst wall by means of ammoniacal silver hydroxide. The hardening of the cyst wall is therefore said to resemble that of insect cuticle. No outer layer of waxy substance could be found on the wall, which Ellenby shows to be permeable to water, a cyst losing a volume of water equal to its own volume in 10 to 15 minutes. In experiments, the permeability of the cyst wall decreased as the wall dried out, since water was lost at a greater rate than it was able to enter the cyst under the conditions of the experiment. M.T.F.

(44c) *Physopsis africana* has, in the recent period of drought in Natal, shown marked resistance to environmental influences which have been detrimental to its natural enemies. Specimens 20 mm. long have been collected from pools in open rivers but they have all been free of larval trematodes.

R.T.L.

(44d) Ellenby finds that considerably greater numbers of larvae hatch from cysts of the potato-root eelworm which have been punctured than from undamaged cysts. He suggests that puncturing allows the escape from the cysts of inhibiting substances which are produced as a result of metabolism when the larvae are being stimulated by potato-root excretion and which, when they accumulate, cause cessation of hatching. The hatching of larvae from cysts soaked for 24 hours in various acetate buffer solutions and then washed and transferred to potato-root excretion is shown to vary with the pH of the buffer solution used. Maximum hatching occurs after treatment with solutions of pH 6 and numbers steadily decrease as the pH is reduced to 4, below which the cyst contents appear to have been killed. Above pH 7 hatching also decreases. Ellenby shows that more larvae hatch from cysts pretreated for 24 hours at room temperature in solutions of trypsin and juices from earthworm guts than from similar solutions previously boiled.

M.T.F.

(44f) Hawking & Burroughs exposed 9 albino mice to infection with *Litomosoides carinii* by means of the tropical rat mite, *Liponyssus bacoti*. Three of the mice developed the infection which was demonstrated by finding worms 5 to 14 mm. long in one mouse after autopsy, and in two mice by finding microfilariae in the blood. Three hamsters were also exposed and all three became infected.

J.J.C.B.

45—North American Veterinarian.

- a. CRAIGE, JR., A. H. & KLECKNER, A. L., 1946.—“Teniacid action of Di-Phenthan-70.” **27** (1), 26–30.
- b. BUTLER, W. J., 1946.—“Fluke control in Montana.” **27** (4), 234.
- c. ALLEN, R. W. & JONES, L. D., 1946.—“The efficacy of sodium fluoride in removing ascarids of swine.” **27** (6), 358–360.

(45a) Craige & Kleckner show that dihydroxydichlorodiphenylmethane is an effective taenicide for dogs in a dosage of 200 mg. per Kg. body weight. A dose as low as 50 mg. per Kg. body weight is very useful. The worms are killed in the intestine and digested. It is not highly toxic in a single dose though a toxic effect may accumulate after a series of smaller doses. The symptoms of chronic poisoning include loss of weight and diarrhoea, and post-mortem shows pneumonia, haemorrhages in the intestine and colitis.

P.A.C.

(45b) In a brief reply to a question on fluke control in western Montana it is stated that no official control measures have been operated for several years. A scheme involving copper sulphate and drainage was inaugurated in 1934 but the copper treatment affected fish and game, and was abandoned in favour of drainage.

B.G.P.

(45c) Sodium fluoride administered as a 1% by weight of the feed ration for one day to 60 pigs gave an average efficacy of 97% against *Ascaris lumbricoides* and seemed to be reasonably well tolerated.

R.T.L.

46—Parasitology.

- a. REES, G., 1946.—“A record of the nematode parasites of fishes from the Porcupine Bank, Irish Atlantic Slope and Irish Sea.” **37** (1/2), 38–41.

(46a) Rees lists the nematode parasites infesting deep sea fish caught on the west of Ireland. 703 fish belonging to 47 species were examined and 26 species contained no nematodes; from the others 13 species of nematodes were recovered. There were larvae of *Contracaecum* and either *Anisakis* or *Porrocaecum*, and adults of *Contracaecum clavatum* and *C. sp.*, *Proleptus africanus*, *P. obtusus*, *P. robustus*, *Spinitectus cristatus*, *Camallanus sp.*, *Cucullanus hians*, *C. truttae*, *C. sp.* and an unidentified species of *Capillaria*. There were 10 new host records.

P.A.C.

47—Phytopathology.

- a. CHITWOOD, B. G. & BUHRER, E. M., 1946.—“The life history of the golden nematode of potatoes, *Heterodera rostochiensis* Wollenweber, under Long Island, New York, conditions.” 36 (3), 180–189.
- b. DRECHSLER, C., 1946.—“A new hyphomycete parasitic on a species of nematode.” 36 (3), 213–217.
- c. CHRISTIE, J. R., 1946.—“Host-parasite relationships of the root-knot nematode, *Heterodera marioni*. II. Some effects of the host on the parasite.” 36 (5), 340–352.
- d. PARRIS, G. K., 1946.—“Use of D-D mixture permits two crops of watermelons per year in breeding program.” [Abstract of paper presented at the 37th Annual Meeting of the Society, St. Louis, Missouri, March 27 to 30, 1946.] 36 (5), 408.

(47a) The potato root eelworm was first recorded from Long Island in 1941, and a survey of the potato-growing areas of the north-eastern United States made in 1944 has failed to show its presence elsewhere. Chitwood & Buhner describe its life-history, stating that under the conditions in Long Island the larvae undergo 4 moults in the host root in 23 to 33 days, and at the end of a further 16 days embryonated eggs are produced (at soil temperatures of 58° to 69°F.). The rate of growth of the roots of 3 varieties of potato, Irish Cobbler, Green Mountain and Houma, was studied in relation to soil temperature, and it is stated that varietal differences in susceptibility to nematode damage are probably correlated with varietal differences in ability to produce roots at temperatures below those at which the nematodes make their heaviest attack. Irish Cobbler was found to be capable of root growth at temperatures of 45° to 58°F., while Green Mountain began to grow at 54° to 58°F. Crop yields and production costs of these 2 varieties on moderately and heavily infested soils are compared for the years 1941 to 1944, from which it is concluded that Irish Cobbler may or may not be profitable on infested land but Green Mountain definitely is not. A comparison of crop yields and early spring soil temperatures in Nassau County, Long Island, seems to indicate that the length of the period of mild spring weather is a major factor in determining the potato crop production in eelworm infested areas.

M.T.F.

(47b) Drechsler gives an illustrated description of a new hyphomycetous nematode-destroying fungus, *Acrostalagmus zeosporus* n.sp., which was cultivated on nutrient agar but came originally from an inoculum of decaying leaf and stem of crabgrass, *Digitaria sanguinalis*. The new species is one in which one or more conidia become attached to the exterior of a nematode through the cuticle of which a germ tube is later thrust from which hyphae grow into and destroy the body tissues. In the agar cultures in which it occurred *Acrostalagmus zeosporus* attacked only specimens of *Panagrolaimus subelongatus* (Cobb) Thorne though other species of free-living nematodes were present.

T.G.

(47c) Christie describes experiments on the host-parasite relations of *Heterodera marioni*. In some, a single population of the nematode was tested on a variety of host plants, and in others several populations were tested on the same host. The plant roots were examined after certain intervals of time and the numbers and state of development of the parasite observed. Plants of 10 varieties of sweet potato (*Ipomoea batatas*) were inoculated with population 8 of the nematode, and in two varieties the development of the parasite at the end of 5 weeks was retarded as compared with that in most others, while in “Orange Little Stem” only a very light infection was found. The same nematode population showed little variation when parasitic on 7 varieties of *Phaseolus vulgaris*. In *Nicotiana megalosiphon* it developed much more slowly than in *N. tabacum*, while in *N. plumbaginifolia*, although larvae entered the roots, no females developed. In certain plants variations in development were observed amongst the different populations of *H. marioni*. Six weeks after the inoculation of peanut (*Arachis hypogaea*) seedlings with 4 nematode populations, most individuals of 2 of the populations had developed to the final moult stage, while egg-laying had begun in another population, and the fourth had not succeeded in invading the host roots. Two populations tested on cotton, variety Coker 100, also varied considerably in their rate of development. On alfalfa, while considerable numbers of one nematode population had reached the egg-laying stage at the end of 8 weeks, very few individuals of a second population could be found, though those found were equally well-developed. In

Taraxacum kok-saghyz 4 nematode populations varied little in rate of development, though one was found present in smaller numbers than the others. It is concluded that plants vary in their suitability for given races of the root-knot nematode, unsuitability being shown by retarded development of the parasite. There is apparently no correlation between suitability of the host and freedom with which larvae enter the roots, nor is unsuitability necessarily correlated with reduction in galling.

M.T.F.

(47d) A second crop of melons grew to maturity in one season as a result of the application of D-D mixture to Norfolk (U.S.A.) sand known to contain *Heterodera marioni* and suspected of containing also the meadow nematode. 5 c.c. of the chemical was applied in holes 6 inches deep and 12 inches apart. The actual quantity of D-D used per acre was 175 lb. There was no evidence of injury to seeds planted 10 days after the soil treatment.

R.T.L.

48—Proceedings of the Helminthological Society of Washington.

- a. HABERMANN, R. T., 1946.—“The probable origin of some unusually heavy infections with the common sheep hookworm (*Bunostomum trigonocephalum*).” 13 (1), 11–12.
- b. WARD, J. W., 1946.—“A preliminary study of the occurrence of internal parasites of animals in Mississippi.” 13 (1), 12–14.
- c. DIKMANS, G., 1946.—“A new nematode, *Longistriata caudabullata* n.sp. (Nematoda: Vian[?]inae), from the short-tailed shrew, *Blarina brevicauda*.” 13 (1), 14–16.
- d. DOUGHERTY, E. C., 1946.—“The genus *Aelurostrongylus* Cameron, 1927 (Nematoda: Metastrongylidae), and its relatives; with descriptions of *Parafilaroides*, gen. nov., and *Angiostrongylus gubernaculatus*, sp. nov.” 13 (1), 16–25.
- e. DOUGHERTY, E. C., 1946.—“Errata.” 13 (1), 25–26.

(48a) Reporting 3 heavy infestations of *Bunostomum* in mature sheep, 555, 634 and 982 hookworms respectively, Habermann points out that the fact of these animals being kept in small pens with deep litter would explain the heavy infestations if the percutaneous route of infection obtained (though the oral route is not precluded).

B.G.P.

(48b) Ward lists the helminths found by him in domesticated animals in Mississippi. He notes also that the faeces of 2 colts only 28 days old showed mild infections with *Strongyloides* spp. and *Strongylus* spp., while in a 15-day-old colt there were *Strongylus* spp., *Parascaris equorum* and *Strongyloides* sp.

R.T.L.

(48c) There is no previous record of nematodes in the short-tailed shrew. Dikmans describes *Longistriata caudabullata* n.sp. which he would have been inclined to identify as *L. depressa* but for the presence of a large and prominent vesicular swelling on the dorsal side of the terminal portion of the female. As in this species the branches of the dorsal ray are undivided at the tips.

R.T.L.

(48d) Dougherty has recently reviewed *Filaroides* and *Metathelazia* of the Filaroidinae [see Helm. Abs., Vol. XII, No. 102a]. He now gives a brief key to the 6 genera of that subfamily and lists the species and type hosts of the other 4 genera: *Parafilaroides* n.g. (for *Pseudalius gymnurus*), *Aelurostrongylus*, *Angiostrongylus*, and *Gurltia*. *Angiostrongylus gubernaculatus* n.sp., from the heart of *Taxidea taxus* and *Mephitis mephitis*, is described and figured.

B.G.P.

(48e) Dougherty here collects errata for 7 of his recent papers, the titles of which can be found in Helm. Abs., Vol. XII, Nos. 102a, 183m; Vol. XIII, Nos. 55k, 136a, 140g; Vol. XIV, Nos. 43e, 138e.

B.G.P.

49—Proceedings of the Royal Society. Series B.

- a. ALEXANDER, A. E. & TRIM, A. R., 1946.—“The biological activity of phenolic compounds. The effect of surface active substances upon the penetration of hexyl resorcinol into *Ascaris lumbricoides* var. *suis*.” 133 (871), 220–234.

(49a) Quantitatively measuring the effect of soaps on the penetration of *Ascaris lumbricoides* cuticle by hexylresorcinol, Alexander & Trim found that penetration was accelerated by dilute solutions of sodium cholate, sodium oleate, or cetyl trimethyl ammonium bromide (in that order of efficacy), but completely inhibited at high concentrations. The maximum accelerating effect

occurs at that relative concentration of hexylresorcinol and soap at which the interfacial tension is minimal. This is explained in terms of micelle formation of the soap molecules, the soap micelles taking up more of the drug at increasing concentrations of the former. B.G.P.

50—Proceedings of the Society for Experimental Biology and Medicine.

- a. BRANDT, J. L. & FINCH, E. P., 1946.—“A method for removal of adult *S. mansoni* from experimentally infected rabbits.” 61 (1), 22–23.
- b. FRANKS, M. B., 1946.—“Blood agglutinins in filariasis.” 62 (1), 17–18.

(50a) Adults of *Schistosoma mansoni* were easily recovered from experimentally infected rabbits by the following technique: 100 mg. of heparin in 30 to 40 c.c. of physiological salt solution was injected very slowly into the heart or intravenously. After 15 to 30 minutes the animal was killed, the abdomen opened and the portal vein exposed. The heparinized blood containing the worms is then aspirated with a 50 c.c. syringe having an 18-gauge needle. To keep the worms alive the aspirated blood is poured into physiological salt solution containing 0.5% saponin. If this is not desired the blood can be laked by putting the contents of the syringe into tap water, when the worms will then settle to the bottom of the dish. To recover the worms left in the liver and mesenteric vessels, these should be cut up and perfused or placed overnight in saline in an icebox. R.T.L.

(50b) Franks has found that the incidence of circulating microfilariae is more frequent in sera that do not contain α -agglutinins. High α - and β -isoagglutinin titres occurred in the sera of filariasis patients even when microfilariae were not demonstrable. He suggests that it may be possible that the blood group substances have an immunological role but points out that there is no experimental evidence of it available. P.A.C.

51—Public Health Reports. Washington.

- a. BOZICEVICH, J., HOYEM, H. M. & WALSTON, V. M., 1946.—“A method of conducting the 50 per cent. hemolysis end point complement-fixation test for parasitic diseases.” 61 (15), 529–534.

(51a) Bozicevich et al. describe a modification of the complement fixation test which apparently eliminates difficulties due to the anti-complementary effect of the antigen. The titre is calculated on the basis of that amount which will give 50% haemolysis when compared with a colour standard: 4 of these 50% units are used, in a total volume of 1 c.c. A 2% cell suspension is made from which a colour standard is made by which to determine the end point of 50% haemolysis. The volume of packed sheep cells is measured and made up to a 2% suspension with saline; 10 c.c. of this is centrifuged and laked with distilled water and tonicity is restored by the addition of a stock buffer solution. The colour standard is prepared from it. In the test proper the reagents are added in the order of saline, serum (in a dilution of either 1:5 or 1:10), 4 units of complement and antigen and placed in a refrigerator overnight. Next day sensitized sheep cells are added and the whole incubated for 30 minutes. Tubes containing 30, 50, 70 or 100% cells respectively of the colour standard are removed and shaken. Any tube matching the tube containing 30% cells or more is regarded as positive, all others being negative. Both serum dilutions are necessary in the test because the lower dilution contains strong anti-complementary tendencies. P.A.C.

52—Queensland Agricultural Journal.

- a. ROBERTS, F. H. S., 1946.—“Parasitic diseases of the pig.” 62 (1), 30–51.
- b. CLAY, A. L., 1946.—“Management of pigs in relation to disease prevention.” 62 (2), 98–111.

53—Research Bulletin. Missouri Agricultural Experiment Station.

- a. ELDER, C., CRISLER, O. S. & GENTRY, R. F., 1946.—“Efficacy of phenothiazine in the treatment of sheep for control of internal parasites.” No. 396, 12 pp.

(53a) Experiments show that control of nodular worm in the lambs was obtained by treating the ewes monthly with phenothiazine from December to April, and then allowing

access to a 1 in 10 phenothiazine-salt lick. Without the lick heavy infestation occurred. This method also kept the *Haemonchus contortus* infection down but did not control *Ostertagia*, *Nematodirus*, *Cooperia* or *Möniesia*. Monthly dosing of the lambs with CuSO_4 almost completely eradicated *Haemonchus*.
J.W.G.L.

54—Revista de Medicina Tropical y Parasitología, Bacteriología, Clínica Laboratorio.

- a. LEÓN, L. A., 1946.—“Cuarto caso de infección humana por *Agamomermis*.” 12 (1), 25–26.

(54a) León records a fourth human infestation with *Agamomermis hominis*. The host was a child 5 years old living in the city of Ibarra, and the site of the infestation was the intestine. It was associated with diarrhoea and abdominal pain. He describes the worm and treatment, and suggests methods of prophylaxis.
P.A.C.

55—Rhodesia Agricultural Journal.

- a. HUTSON, P. D., 1946.—“Internal parasites in sheep and cattle.” 43 (1), 16–24.

(55a) This paper is written with the intention of assisting stockowners to diagnose the commonest forms of internal parasites in sheep and cattle in Southern Rhodesia and advises on the use of the various government remedies available in Southern Rhodesia.
J.W.G.L.

56—Schweizerische Medizinische Wochenschrift.

- a. FISCHER, F. K., 1946.—“Beitrag zur Kenntnis der Anguilluliasis oder Strongyloidosis.” 76 (7), 137–140.

(56a) The author describes in detail a case of severe infection with *Strongyloides* in which therapeutic treatment was ineffective. He discusses the possibility of auto-infection with this parasite and disagrees with current text-book opinions that the infection is relatively harmless.
J.J.C.B.

57—Science.

- a. WILLIAMS, R. W. & BROWN, H. W., 1946.—“The transmission of *Litomosoides carinii*, filarial parasite of the cotton rat, by the tropical rat mite, *Liponyssus bacoti*.” 103 (2669), 224.
b. FOWLE, C. D., 1946.—“The blood parasites of the blue grouse.” 103 (2885), 708–709.
c. MILLER, R. B., 1946.—“Cestode ‘parasitized’ by acanthocephalan.” 103 (2687), 762.
d. AVERY, J. L., 1946.—“The habitat of the snail host of *Schistosoma japonicum* in the Philippines.” 104 (2688), 5.
e. LEONARD, A. B., 1946.—“Misuse of the Linnaean system of nomenclature.” [Correspondence.] 104 (2688), 17.
f. WHARTON, D. R. A., 1946.—“Transplantation of adult filarial worms, *Litomosoides carinii*, in cotton rats.” 104 (2689), 30–31.

(57a) Williams & Brown proved experimentally that *Litomosoides carinii* of the cotton rat is transmitted by the tropical rat mite, *Liponyssus bacoti*, by exposing two albino rats to the bites of colonies of these mites which were developing on infected cotton rats. After 42 and 44 days of continuous exposure the albino rats were autopsied and were found to contain respectively 7 and 2 *L. carinii* in the pleural cavity. Two control albino rats were negative. In a similar experiment it was shown that microfilariae appeared in the blood 80 days after exposure to infected mites, but from epidemiological evidence it is believed that the microfilariae may appear in the blood within 50 to 60 days.
J.J.C.B.

(57b) Fowle has found microfilariae in the blood of the blue grouse, *Dendragapus obscurus*, from Campbell River and Cowichan Lake. All the affected birds were adults, 22% of which were infested.
P.A.C.

(57c) Miller reports several cases of *Echinorhynchus salvelini* with the proboscis buried in the strobila of *Eubothrium salvelini*; the host was the lake trout, *Cristivomer namaycush*. B.G.P.

(57d) Avery found *Schistosomophora quadrasi*, in the Philippines, mainly in quiet shallow water, attached to decaying vegetation. They may leave the water for short distances in the cool of morning and evening. They were not common in paddy fields. 36% were infected with *Schistosoma japonicum*.
B.G.P.

(57e) Citing *Cercaria sagittaria* as an example, Leonard protests against the use of Linnaean binominal forms for the developmental stages of an animal (in the case cited, *C. sagittaria* has page precedence over *Proterometra sagittaria*). B.G.P.

(57f) Wharton describes the technique of transplanting live adult *Litomosoides carinii* from infected cotton rats to normal cotton rats. The attempt failed in the 10 normal animals. Successful transplantation was achieved in 4 out of 9 rats all of which had previously been splenectomized and the reticuloendothelial system of which had subsequently been blocked with India ink. Transplantation was also successful in 2 out of 3 rats which had received X-ray treatment; to another naturally infected rat; and to rats injected with a suspension of *Dirofilaria immitis*. J.J.C.B.

58—Soil Science.

- a. NEWHALL, A. G., 1946.—“Volatile soil fumigants for plant disease control.” 61 (1), 67–82.
- b. JOHNSON, J., 1946.—“Soil-steaming for disease control.” 61 (1), 83–91.
- c. KINKAID, R. R., 1946.—“Soil factors affecting incidence of root knot.” 61 (1), 101–109.

(58a) Newhall, reviewing the problem of soil fumigants, discusses the properties of an ideal substance, methods for testing fumigants, and also the factors affecting the efficiency of such a compound. Data is presented regarding the nematocidal efficiency of chloropicrin, carbon disulphide, D-D mixture, ethylene dichloride and methyl bromide, and some of the dangers and snags inherent in the use of fumigants are discussed. Various methods of applying fumigants using both hand injectors suitable for spot applications, as well as mechanical apparatus for strip injections are described. D.F.

(58b) Johnson, following a short account of the history of soil sterilization, discusses its effect on plant pathogens. Its effect on the growth of micro-organisms generally is discussed as well as the beneficial and harmful effects it has on plant growth. The danger of confusing these latter effects with the actual benefits of sterilization is pointed out. A short account is given of practical methods of sterilization. D.F.

(58c) Kincaid summarizes in a very concise form the effect of different soil factors on the incidence of the root knot nematode, *Heterodera marioni*, under the following headings: temperature, moisture, sunlight, aeration, hydrogen ion concentration, organic matter and biological control, soil fertility, flooding and fallow. The movements and distribution of nematodes is discussed. The existence of physiological races of this parasite with different low temperature reactions is suggested. D.F.

59—South African Medical Journal.

- a. ALVES, W., 1946.—“The ‘Public Health Cure’ of bilharziasis with one-day course of antimony.” 20 (6), 146–147.

(59a) Alves believes that smaller doses of antimony than those customarily given may render human cases of schistosomiasis non-infective by killing the female worms. As a result of treating 131 Africans with an intensive intravenous course of sodium antimonyl tartrate in 4 doses of 2 grains each at 3-hourly intervals in one day, none of the patients were found to be passing viable eggs one month later. No microscopical examinations of the patients had been made prior to treatment but they were positive to a cercarial antigen skin-test devised by the author. R.T.L.

60—Transactions of the American Microscopical Society.

- a. DICKERMAN, E. E., 1946.—“Studies on the trematode family Azygiidae. III. The morphology and life cycle of *Proterometra sagittaria* n.sp.” 65 (1), 37–44.
- b. MACY, R. W. & RAUSCH, R. L., 1946.—“Morphology of a new species of bat cestode, *Hymenolepis roudabushi*, and a note on *Hymenolepis christensoni* Macy.” 65 (2), 173–175.

(60a) Dickerman describes the redia, cercaria and adult of *Proterometra sagittaria* n.sp. [though this was named in his 1937 paper]. The cercaria is the largest known—attaining some 2 cm. in the living extended state. The young orange-coloured distome is lodged in a small

anterior cavity of the elongated "tail-stem", and develops independently from it, making its way into it through the anterior pore of the tail before emerging from the redia, and leaving by the same route on arrival in the definitive host (*Eupomotis gibbosus*). This almost colourless tail has an independent excretory system which branches into the two terminal flappers. There is no true swimming, but a slow coiling, interpreted as drawing the attention of the fish host (Centrarchidae). Less than 1% of the *Goniobasis* and *Pleurocera* snails were infected in the Western Lake Erie region and from Ohio. Some of the rediae contained mature cercariae with eggs, which even had miracidia—suggesting that a vertebrate host might be dispensed with. Tabular comparisons are given for *Cercaria catenaria* and *C. sagittaria*, and for the adult form and *P. macrostoma*. N.G.S.

(60b) Macy & Rausch describe *Hymenolepis roudabushi* n.sp. from bats *Eptesicus fuscus*, *Nycticeius humeralis* and *Lasionycteris noctivagans* in Ohio. It has 41 to 48 rostellar hooks, testes linear and serrate margins to the strobila. Re-examination of *H. christensoni* from various bats shows a good deal of variability in the size of the hooks and in their number. P.A.C.

61—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. BUCKLEY, J. J. C., 1946.—"Incidence and distribution of human helminths in North-Eastern Rhodesia." [Demonstration.] 39 (4), 267.
- b. BUCKLEY, J. J. C., 1946.—"Bilharziasis in human bladder." [Demonstration.] 39 (4), 267.
- c. BUCKLEY, J. J. C., 1946.—"Experimental infection of *Simulium neavei* with *Onchocerca volvulus*." [Demonstration.] 39 (4), 267.
- d. BUCKLEY, J. J. C., 1946.—"Original preparations of Prof. A. Looss, demonstrating the migrations of hookworm larvae in a dog." [Demonstration.] 39 (4), 267.
- e. CULLINAN, E. R., 1946.—"Medical disorders in East Africa." 39 (5), 353-368. [Discussion pp. 368-372.]

(61e) The urine of 1,408 East African troops, all of whom were in active training and apparently fit, showed schistosome eggs in 13.56%. 0.6 per 1,000 of the European troops suffering from medical disorders and admitted to military hospitals in East Africa between 1st July, 1944 and 30th June, 1945 are recorded as having schistosomiasis. R.T.L.

62—United States Naval Medical Bulletin.

- a. WEBSTER, E. H., 1946.—"Filariasis among white immigrants in Samoa." 46 (2), 186-192.
- b. DANGLADE, J. H. & FITZGERALD, P. J., 1946.—"Asymptomatic microfilariaemia in the Caribbean area." 46 (2), 193-201.
- c. HERMAN, J. R., 1946.—"Multiple infection with intestinal parasites on a naval vessel." 46 (2), 281-284.

(62b) Nine natives of the Virgin Islands, positive for microfilariae of *Wuchereria bancrofti*, were without symptoms or clinical histories of filariasis. Both eosinophilia and lymphocytosis were absent. After discussing this situation, Danglade & Fitzgerald conclude that such persons are dangerous reservoirs of infection. B.G.P.

63—Veterinary Journal.

- a. SPRENT, J. F. A., 1946.—"Some observations on the incidence of bovine helminths in Plateau Province, Northern Nigeria." 102 (2), 36-40.

(63a) Sprent lists 23 species of helminths (15 nematodes, 4 trematodes and 5 cestodes including one larval form) found in 250 cattle in the Plateau Province of Northern Nigeria. The average helminth burden was light and no lesions were observed. Although the animals showed anaemia this bore no relation to the worm infections. R.T.L.

64—Veterinary Medicine.

- a. HULL, F. E., 1946.—"Diseases of sheep." 41 (2), 53-55.
- b. KUBIN, R. & LAGER, A. E., 1946.—"Modified technic for red cell determination in goats." 41 (3), 89.
- c. LUSTIG, S., 1946.—"Veterinary service in New Caledonia." 41 (3), 102-103.

(64a) This paper includes a popular account of helminthic infections in sheep in Indiana giving suggestions as to control measures and time of treatment with phenothiazine together

with the use of a 1 to 9 phenothiazine-salt mixture. Early lambing and marketing avoid much of the parasitism. J.W.G.L.

(64b) In order to avoid clumping and crenation of the erythrocytes, physiological saline (0.85% NaCl) solution is recommended as a substitute for Hayem's solution in caprine red cell quantitative and qualitative examinations. If this is carried out before treatment of the goat for parasites, the necessity for supplementary treatment of the anaemia with iron or vitamins will be determined. J.W.G.L.

(64c) The only helminths mentioned are *Habronema megastoma* and strongyles in horses, and *Dirofilaria immitis* in dogs, in New Caledonia. J.W.G.L.

65—Veterinary Record.

- a. OTTAWAY, C. W. & BINGHAM, M. L., 1946.—“Further observations on the incidence of parasitic aneurysm in the horse.” 58 (14), 155–159.
- b. ANON, 1946.—“Arecoline acetarsol as an anthelmintic for cats.” 58 (17), 197.
- c. STEWARD, J. S., 1946.—“The diagnosis of onchocerciasis.” 58 (24), 261.

(65a) Ottaway & Bingham examined 87 ponies for evidence of infestation with *Strongylus vulgaris* and made a special study of the location of parasitic aneurysms. The most common sites were the root and origin of the main divisions of the anterior mesenteric artery. Little correlation was found between physical condition of the animals, egg-counts, eosinophilia and the presence of aneurysms. The number of larvae was found to be greatest in aneurysms from ponies of the younger age groups, but there was apparently no relationship between the size of aneurysms and the number of larvae contained therein. Evidence was obtained which suggests an intra-arterial migration of larvae, possibly associated with the life-cycle of the parasite. There was also evidence in favour of the view that verminous colic may be due to nerve lesions in the peritoneal ganglia produced by pressure of proximate aneurysms. J.J.C.B.

(65b) Arecoline acetarsol is recommended as a taeniocide for cats over one year old, given as a half-tablet (9 mg.) 3 hours after a meal and repeated in 10 to 14 days if necessary. For roundworms in kittens santonin and calomel is the only safe treatment. B.G.P.

(65c) Steward gives a detailed description of the methods which may be employed in diagnosing *Onchocerca* infections, with special reference to *O. cervicalis*, by the detection of the adult worms or of the microfilariae. J.J.C.B.

NON-PERIODICAL LITERATURE.

- 66—BAKER, A. D. & CHAPMAN, L. J., 1946.—“The oat nematode in Ontario.” Processed Publication, Division of Entomology, Department of Agriculture, Canada, No. 29, 4 pp.

Baker & Chapman have written an account of the oat nematode, *Heterodera avenae* Lind., Rostrup & Ravn, in popular form for the use of farmers and others. There are clear drawings of an affected oat plant showing the much branched root system and of cystic females and larvae. The paper deals with such matters as how to recognize oat nematode infestation, how the nematode is dispersed from place to place, and what to do about an infected field. T.G.

- 67—EGYPT, MINISTRY OF PUBLIC HEALTH, 1946.—“Bilharzia snail destruction section. Annual report, 1943.” Cairo, 26 pp.

In this report an account is given of the progress of the anti-bilharzia campaign in Fayoum Province, a more detailed account of the Giza Province campaign which followed it and some observations and comments are made on the work in the Dakhla Oasis. A summary is included of research work having a bearing on methods of snail destruction, which is concerned with seasonal variations in snail populations, the distribution of snails during the winter closure, the use of palm-leaf traps for snails and the results of examination of snails for bilharzia infection. J.J.C.B.